

Work Order ID 152502

Wednesday, October 26, 2016 12:33:35 PM

U/R

152502

6K 11/11/23

Ship Dec 2.

Page 1

Item ID: DSI 9744-011 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: URF 16-643 Stop ***NS2***
Item Name: Heavy Duty Support
Start Date: 10/26/2016 Start Qty: 16.00 ***16*** Cust Item ID:
Required Date: 11/9/2016 Req'd Qty: 16.00 ***16*** Customer:
Reference:

Approvals: Process Plan: VS/ **DAS 21 9-89** Date: 16/11/21 Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Inch Hrs	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
DSI 9744	A U/R	DAS 6 9-89					DAS 21 9-89	<u>16-11-24</u>	
100	Document Control	0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork	Photocopy bluefile & type labels per PPP DSI9744-011 CHG001								
									DEC 0 1 2016
110	Pick Kit	0.00							
110									
Packaging	Memo	0.00							
Packaging									
									DAS 6 9-89 DAS 28 9-89 <u>NOV 25 2016</u>
120	QC4- 100% Inspect kits for completeness	0.00							
120									
QC	Memo	0.08							
Quality Control									
									DAS 27 9-89

DEC 0 1 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																	
		OTHER : _____																							

Wednesday, October 26, 2016 12:33:35 PM

152502

Page 2

N900040100

```

Setup  Start  *NS1*
          Stop   *NS2*

```

Start Date: 10/26/2016	Start Qty: 16.00	*16*
Required Date: 11/9/2016	Req'd Qty: 16.00	*16*

Cust Item ID:
Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run	Start	*NR1*
	Stop	*NR2*

[illegible]

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coor. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation		Disposition			

Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐				

Picklist Print

Wednesday, October 26, 2016 12:33:40 PM

Page 1

Work Order ID: 152502

152502

Parent Item: DSI 9744-011

DSI 9744-011

Parent Item Name: Heavy Duty Support

Start Date: 10/26/2016

Required Date: 11/9/2016

Start Qty: 16.00

Required Qty: 16.00

Comments: IPP REV:A 16.05.24 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D5380-1 *D5380-1* Support		Manufactured	No				Each	1.0000		16			
--	--	--------------	----	--	--	--	------	--------	--	----	--	--	--

Location	Loc Qty	Loc Code
----------	---------	----------

prelim	1	
144114	1	

D5380-3 *D5380-3* Support Base		Manufactured	No				Each	1.0000		16			
---	--	--------------	----	--	--	--	------	--------	--	----	--	--	--

Location	Loc Qty	Loc Code
----------	---------	----------

prelim	1	
144116	1	

DP460 *DP460* Scotch Weld Adhesive		Purchased	No				Each	4.0000		16			
---	--	-----------	----	--	--	--	------	--------	--	----	--	--	--

Location	Loc Qty	Loc Code
----------	---------	----------

PK	4	
m134867	4	

NAS1805-4P *NAS1805-4P* Nut		Purchased	No				Each	16.0000		128			
--	--	-----------	----	--	--	--	------	---------	--	-----	--	--	--

Location	Loc Qty	Loc Code
----------	---------	----------

ST548	16	
m134558	16	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coor. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coor. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coor. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																	
OTHER : ☐																									

Picklist Print

Wednesday, October 26, 2016 12:33:40 PM

Page 2

Work Order ID: 152502

152502

Parent Item: DSI 9744-011

DSI 9744-011

Parent Item Name: Heavy Duty Support

Start Date: 10/26/2016

Required Date: 11/9/2016

Start Qty: 16.00

Required Qty: 16.00

NAS6704-21

Purchased

No

Each

16.0000

8

128

NAS6704-21

Bolt

**

134047X/129-89 NOV 25 2016

DAS
6

DAS
28
9-89

Location

Loc Qty

Loc Code

ST553

16

m134558

16

16

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																		
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																																																																			
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																																																																			
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																																																																			
Large Fab ☐	Composite ☐	Supplier ☐																																																																				
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval																																																																		
Description Work Order Deviation		Disposition		Completed By																																																																		
				Lead hand / Supervisor Approval Verification																																																																		
				QC / QA Coordinator Approval																																																																		
Root Cause		FAULT CATEGORY																																																																				
<table style="width:100%; border: none;"> <tr><td style="border: none;">Environment ☐</td><td style="border: none;">No Re-verification ☐</td></tr> <tr><td style="border: none;">Design ☐</td><td style="border: none;">Operator ☐</td></tr> <tr><td style="border: none;">Doc/Data ☐</td><td style="border: none;">Offset/Setup ☐</td></tr> <tr><td style="border: none;">Equip/Tooling ☐</td><td style="border: none;">Supplier ☐</td></tr> <tr><td style="border: none;">Handling/Pre ☐</td><td style="border: none;">Training ☐</td></tr> <tr><td style="border: none;">Material ☐</td><td style="border: none;">Use for Testing ☐</td></tr> <tr><td style="border: none;">Internal Transport ☐</td><td style="border: none;">Poor Information ☐</td></tr> <tr><td style="border: none;">Tribal Knowledge ☐</td><td style="border: none;">Rushing ☐</td></tr> <tr><td style="border: none;">LOA ☐</td><td style="border: none;">Product Improvement ☐</td></tr> <tr><td style="border: none;">Substation ☐</td><td style="border: none;">Process Improvement ☐</td></tr> <tr><td style="border: none;">Past Expiry Date ☐</td><td style="border: none;">Manufacturing Process ☐</td></tr> <tr><td style="border: none;">Misidentified ☐</td><td style="border: none;">Past Due ☐</td></tr> </table>	Environment ☐	No Re-verification ☐	Design ☐	Operator ☐	Doc/Data ☐	Offset/Setup ☐	Equip/Tooling ☐	Supplier ☐	Handling/Pre ☐	Training ☐	Material ☐	Use for Testing ☐	Internal Transport ☐	Poor Information ☐	Tribal Knowledge ☐	Rushing ☐	LOA ☐	Product Improvement ☐	Substation ☐	Process Improvement ☐	Past Expiry Date ☐	Manufacturing Process ☐	Misidentified ☐	Past Due ☐	<table style="width:100%; border: none;"> <tr><td style="border: none;">Pressure/Forced ☐</td></tr> <tr><td style="border: none;">Bending ☐</td></tr> <tr><td style="border: none;">Centre Not Concentric ☐</td></tr> <tr><td style="border: none;">Cracks ☐</td></tr> <tr><td style="border: none;">Crimp/Kink/Ripple/Wave ☐</td></tr> <tr><td style="border: none;">Cuffs ☐</td></tr> <tr><td style="border: none;">Crushing ☐</td></tr> <tr><td style="border: none;">Heat Treat ☐</td></tr> <tr><td style="border: none;">Wave/Twist in Tube ☐</td></tr> <tr><td style="border: none;">Marks/Chatter ☐</td></tr> </table>	Pressure/Forced ☐	Bending ☐	Centre Not Concentric ☐	Cracks ☐	Crimp/Kink/Ripple/Wave ☐	Cuffs ☐	Crushing ☐	Heat Treat ☐	Wave/Twist in Tube ☐	Marks/Chatter ☐	<table style="width:100%; border: none;"> <tr><td style="border: none;">Temperature/Cure ☐</td></tr> <tr><td style="border: none;">Set-up ☐</td></tr> <tr><td style="border: none;">BOM/Route ☐</td></tr> <tr><td style="border: none;">Broken/Damage/Defect ☐</td></tr> <tr><td style="border: none;">Inspection Incomplete/Unqualified ☐</td></tr> <tr><td style="border: none;">Contamination ☐</td></tr> <tr><td style="border: none;">Countersink ☐</td></tr> <tr><td style="border: none;">Cut Too Short ☐</td></tr> <tr><td style="border: none;">Instructions Incomplete/Unclear ☐</td></tr> <tr><td style="border: none;">Drill Holes ☐</td></tr> </table>			Temperature/Cure ☐	Set-up ☐	BOM/Route ☐	Broken/Damage/Defect ☐	Inspection Incomplete/Unqualified ☐	Contamination ☐	Countersink ☐	Cut Too Short ☐	Instructions Incomplete/Unclear ☐	Drill Holes ☐	<table style="width:100%; border: none;"> <tr><td style="border: none;">Power Loss/Surge ☐</td></tr> <tr><td style="border: none;">Folio/Program ☐</td></tr> <tr><td style="border: none;">Grain ☐</td></tr> <tr><td style="border: none;">Weld ☐</td></tr> <tr><td style="border: none;">Wrong Stock Pulled ☐</td></tr> <tr><td style="border: none;">Out of Sequence ☐</td></tr> <tr><td style="border: none;">Off-set ☐</td></tr> <tr><td style="border: none;">Mislabeled ☐</td></tr> <tr><td style="border: none;">Fit/Function ☐</td></tr> <tr><td style="border: none;">Misaligned/off center ☐</td></tr> </table>	Power Loss/Surge ☐	Folio/Program ☐	Grain ☐	Weld ☐	Wrong Stock Pulled ☐	Out of Sequence ☐	Off-set ☐	Mislabeled ☐	Fit/Function ☐	Misaligned/off center ☐	<table style="width:100%; border: none;"> <tr><td style="border: none;">Positioned Wrong ☐</td></tr> <tr><td style="border: none;">Outside Dimensions ☐</td></tr> <tr><td style="border: none;">Over/Under tolerance ☐</td></tr> <tr><td style="border: none;">Part Incorrect ☐</td></tr> <tr><td style="border: none;">Part Lost/Missing ☐</td></tr> <tr><td style="border: none;">Part Moved ☐</td></tr> <tr><td style="border: none;">Drawing ☐</td></tr> <tr><td style="border: none;">Finish ☐</td></tr> <tr><td style="border: none;">Misread ☐</td></tr> <tr><td style="border: none;">Turning Sequence ☐</td></tr> </table>	Positioned Wrong ☐	Outside Dimensions ☐	Over/Under tolerance ☐	Part Incorrect ☐	Part Lost/Missing ☐	Part Moved ☐	Drawing ☐	Finish ☐	Misread ☐	Turning Sequence ☐
Environment ☐	No Re-verification ☐																																																																					
Design ☐	Operator ☐																																																																					
Doc/Data ☐	Offset/Setup ☐																																																																					
Equip/Tooling ☐	Supplier ☐																																																																					
Handling/Pre ☐	Training ☐																																																																					
Material ☐	Use for Testing ☐																																																																					
Internal Transport ☐	Poor Information ☐																																																																					
Tribal Knowledge ☐	Rushing ☐																																																																					
LOA ☐	Product Improvement ☐																																																																					
Substation ☐	Process Improvement ☐																																																																					
Past Expiry Date ☐	Manufacturing Process ☐																																																																					
Misidentified ☐	Past Due ☐																																																																					
Pressure/Forced ☐																																																																						
Bending ☐																																																																						
Centre Not Concentric ☐																																																																						
Cracks ☐																																																																						
Crimp/Kink/Ripple/Wave ☐																																																																						
Cuffs ☐																																																																						
Crushing ☐																																																																						
Heat Treat ☐																																																																						
Wave/Twist in Tube ☐																																																																						
Marks/Chatter ☐																																																																						
Temperature/Cure ☐																																																																						
Set-up ☐																																																																						
BOM/Route ☐																																																																						
Broken/Damage/Defect ☐																																																																						
Inspection Incomplete/Unqualified ☐																																																																						
Contamination ☐																																																																						
Countersink ☐																																																																						
Cut Too Short ☐																																																																						
Instructions Incomplete/Unclear ☐																																																																						
Drill Holes ☐																																																																						
Power Loss/Surge ☐																																																																						
Folio/Program ☐																																																																						
Grain ☐																																																																						
Weld ☐																																																																						
Wrong Stock Pulled ☐																																																																						
Out of Sequence ☐																																																																						
Off-set ☐																																																																						
Mislabeled ☐																																																																						
Fit/Function ☐																																																																						
Misaligned/off center ☐																																																																						
Positioned Wrong ☐																																																																						
Outside Dimensions ☐																																																																						
Over/Under tolerance ☐																																																																						
Part Incorrect ☐																																																																						
Part Lost/Missing ☐																																																																						
Part Moved ☐																																																																						
Drawing ☐																																																																						
Finish ☐																																																																						
Misread ☐																																																																						
Turning Sequence ☐																																																																						
OTHER : ☐																																																																						

DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D212-664 REV. 9

REF. CANADIAN STC: SH01-9
REF. FAA STC: SR01298NY
REF. EASA STC: EASA.IM.R.S.01304
REF. DGAC-MEXICO STC: IA-316/2015

UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 152502
16-11-21
MCS

SHOP COPY
RETURN TO
ENGINEERING

1.0 PURPOSE:

The purpose of this Dart Service Instruction is to provide customers with instructions (on request) to replace the D4909-1 Support with a D5380-1/-3 Support on the D412-664-403 Heavy Duty High Aft Crosstubes.

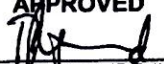
2.0 INSTALLATION PROCEDURE:

Caution: Ensure crosstubes are not damaged during removal of supports.

- 2.1 Remove crosstube in accordance with ICA-D212-664 chapter 32.1.
- 2.2 Accurately mark location of existing D4909-1 Support and then remove the attaching hardware.
- 2.3 Break the seal around the support to remove it. Remove 3M DP460 adhesive between the crosstube and the support. Discard supports and all associated hardware.
- 2.4 Remove residual adhesive on the crosstube with Scotchbrite. Saturate a clean cotton cloth with Methyl Ethyl Ketone (MEK), 4105S Wash'n'Wipe degreaser, or equivalent and wipe the crosstube surface clean.
- 2.5 If the paint finish has been Compromised underneath the support, the prime/paint finish should be removed down to the bare metal, degreased with Axalta 13205S aluminum cleaner, and then treated with Axalta Metalok 230S Adhesion Promoter or DOD-P-15328D Wash Primer per DSI 9735.
- 2.6 Touch up paint finish if required with MIL-P-85582 or MIL-P-23377 primer, and 2-3 coats of MIL-C-85285 polyurethane paint to match original finish and allow to fully cure.
- 2.7 Locate area on the crosstube for installation of D5380-1/-3 Heavy Duty Support Assembly with reference to Figure 2.
- 2.8 Abrade the mating surfaces of the crosstube and D5380-1/-3 support halves with 180-grit sandpaper. Saturate a clean cloth with MEK, 4105S Wash'n'Wipe Degreaser or equivalent and wipe clean until there is no residue.
- 2.9 Apply a 0.04" to 0.07" thick layer of 3M DP460 Adhesive onto the concave surface of the D5380-1 Upper Support Half and the D5380-3 Lower Support Half.
- 2.10 Install D5380-1 Upper Support Half onto the crosstube as shown in Figure 1 and install Qty (2) NAS6704-21 Bolts into opposing corners of the D5380-1 Support. Use the rocker beam as a guide to ensure proper orientation of the D5380-1/-3 Center Support in relation to the D4910-1 Chafing Shields.
- 2.11 Align the bolts with the holes on D5380-3 Lower Support Half and install onto the crosstube, reference Figure 2.
- 2.12 Install the remaining Qty (6) NAS6704-21 Bolts and Qty (8) NAS1805-4P Nuts, then evenly torque the nuts in a criss-cross pattern to 60-70 in-lbs. Ensure a minimum of 1.5 threads are in safety.
- 2.13 Wipe off excess adhesive using a clean cloth saturated with MEK, 4105S Wash'n'Wipe Degreaser or equivalent.
- 2.14 Fillet seal the edges of the D5380-1/-3 Support halves with Proseal PR1422 B1/2 or PR890 B1/2 prior to installing crosstube on aircraft. Allow DP460 adhesive and proseal to cure for 24 hours.
- 2.15 Reinstall crosstube in accordance with ICA-D212-664 Chapter 32.2.
- 2.16 Update aircraft log book to indicate installation of DSI 9744-011 Kit and adjust the weight and balance record for the aircraft with the weight and balance data provided in Section 4.0 of this Dart Service Instruction.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 16.04.07
CERT. NO.: SH01-9
ISSUE NO.: 3

APPROVED

A	NEW ISSUE	ML	16.04.07
REV.	DESCRIPTION	BY	DATE
DESIGN	ML	DART AEROSPACE LTD	
DRAWN	ML	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. A
MFG. APPR.	DD	DSI 9744	SHEET 1 OF 3
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	HEAVY DUTY SUPPORT KIT	NTS
DATE	16.04.07	COPYRIGHT © 2016 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

3.0 PARTS LIST

QTY -011	PART NUMBER	DESCRIPTION
X	DSI 9744-011	HEAVY DUTY SUPPORT KIT
1	D5380-1	UPPER SUPPORT HALF
1	D5380-3	LOWER SUPPORT HALF
1 TUBE	3M DP460	ADHESIVE TUBE
8	NAS1805-4P	NUT
8	NAS6704-21	BOLT

4.0 WEIGHT AND BALANCE

The following table summarizes the net weight increase associated with the installation of the DSI 9744-011 Kit.

PART NUMBER	WEIGHT	LATERAL		LONGITUDINAL	
		STA	MOMENT	STA	MOMENT
DSI 9744-011 HEAVY DUTY SUPPORT KIT	1.1 lb (0.50 kg)	N/A	N/A	163.0 in (4.14 m)	179.3 in lb (2.07 m kg)

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 16.04.07
CERT. NO.: SH01-9
ISSUE NO.: 3

APPROVED

DESIGN	ML	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	ML		
CHECKED	AJS	DRAWING NO. DSI 9744	REV. A
MFG. APPR.	DD		SHEET 2 OF 3
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	HEAVY DUTY SUPPORT KIT	NTS
DATE	16.04.07	COPYRIGHT © 2016 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

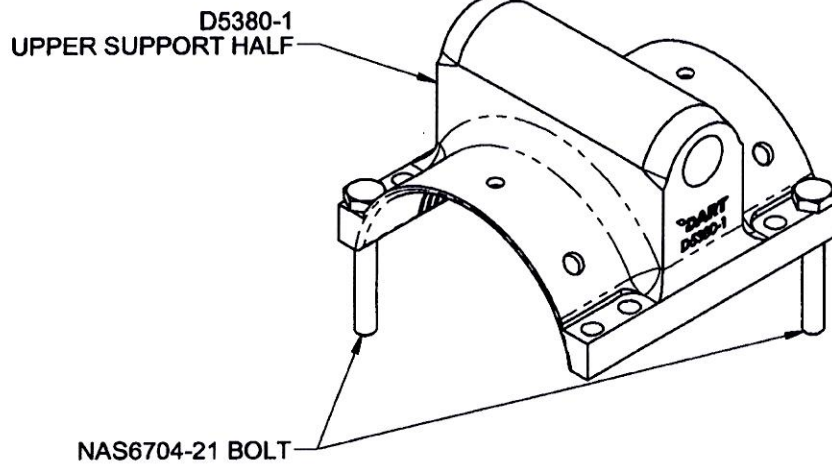


Figure 1 - Support Installation
Crosstube not shown for clarity

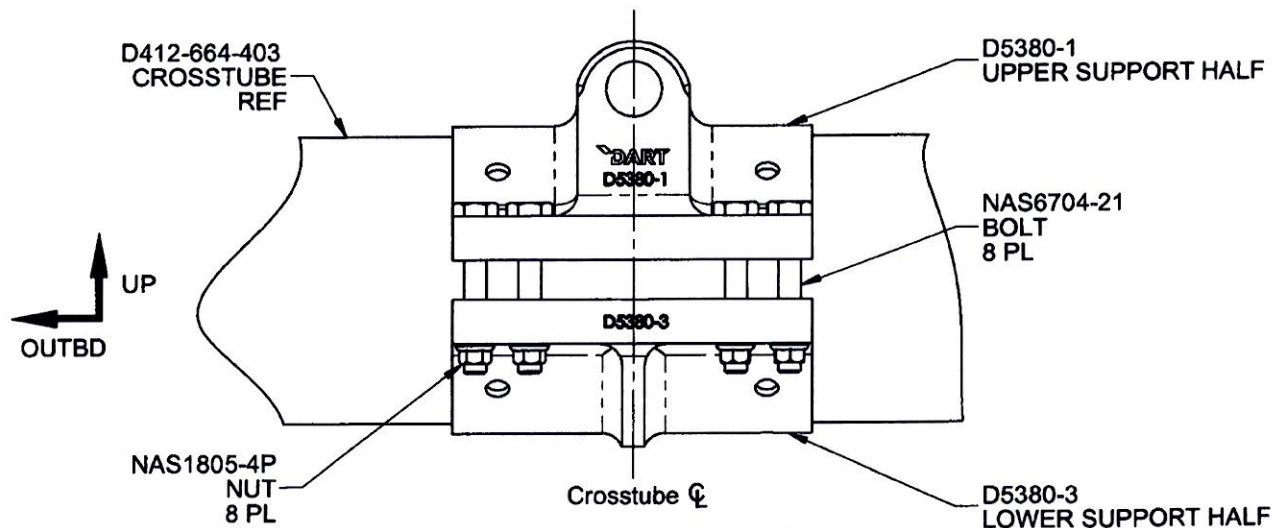


Figure 2 - Support Installation

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: *[Signature]*
D. SHEPHERD (DE # 02)

DATE: 16.04.07
CERT. NO.: SH01-9
ISSUE NO.: 3

APPROVED

DESIGN	ML	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	ML		
CHECKED	AJS	DRAWING NO. DSI 9744	REV. A
MFG. APPR.	DD	SHEET 3 OF 3	
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	HEAVY DUTY SUPPORT KIT	NTS
DATE	16.04.07	COPYRIGHT © 2016 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

Work Order ID 152502

Thursday, November 24, 2016 9:50:14 AM

152502

Page 1

Item ID: DSI 9744-011 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: URF 16-643 Stop ***NS2***
Item Name: Heavy Duty Support
Start Date: 10/26/2016 Start Qty: 16.00 ***16*** Cust Item ID:
Required Date: 11/9/2016 Req'd Qty: 16.00 ***16*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
DSI 9744	A U/R								
100	Document Control	0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork	Photocopy bluefile & type labels per PPP DSI9744-011 CHG001								
110	Pick Kit	0.00							
110									
Packaging	Memo	0.00							
Packaging									
120	QC4- 100% Inspect kits for completeness	0.00							
120									
QC	Memo	0.08							
Quality Control									

DAS
21
9-89

NOV 24 2016

3.0 PARTS LIST

QTY -011	PART NUMBER	DESCRIPTION
X	DSI 9744-011	HEAVY DUTY SUPPORT KIT
1	D5380-1	UPPER SUPPORT HALF
1	D5380-3	LOWER SUPPORT HALF
1 TUBE	3M DP460	ADHESIVE TUBE
8	NAS1805-4P	NUT
8	NAS6704-21	BOLT

4.0 WEIGHT AND BALANCE

The following table summarizes the net weight increase associated with the installation of the DSI 9744-011 Kit.

PART NUMBER	WEIGHT	LATERAL		LONGITUDINAL	
		STA	MOMENT	STA	MOMENT
DSI 9744-011 HEAVY DUTY SUPPORT KIT	1.1 lb (0.50 kg)	N/A	N/A	163.0 in (4.14 m)	179.3 in lb (2.07 m kg)

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 16.04.07
CERT. NO.: SH01-9
ISSUE NO.: 3

APPROVED

DESIGN	ML	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	ML		
CHECKED	AJS	DRAWING NO.	REV. A
MFG. APPR.	DD	DSI 9744	SHEET 2 OF 3
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	HEAVY DUTY SUPPORT KIT	NTS
DATE	16.04.07	COPYRIGHT © 2016 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	